SECTION 10
TRAFFIC IMPACT ANALYSIS AND MITIGATION

(Z2000-0060)

10.01 PURPOSE

The purpose of a traffic impact analysis is to assess the effects of specific development activity on the existing and planned roadway system. Development activity may include but is not limited to rezoning, plan of development approvals, preliminary and final plats, driveway permits, certificates of occupancy, and Thoroughfare Plan amendments.

A Traffic Impact Analysis (TIA) is intended to adequately assess the traffic-related impacts of a zoning and/or development proposal on the existing and planned thoroughfare system. The purpose of this Section 10.00 is to:

1. Provide the safest and most efficient transportation system in conjunction with the development review process;

2. Inform the applicant of the City's requirements and expectations;

3. Provide standard guidelines for the preparation and review of a TIA; and

4. Establish equitable mitigation measures for the accommodation of identified impacts.

After the submission of a zoning application or an application for a permit for a site plan but prior to the commencement of a traffic impact analysis, an initial or pre-submission meeting with the City Staff is required to establish a base of communication between the City and the applicant. This meeting will define the requirements and scope relative to conducting a TIA and ensure that any questions by the applicant are addressed.

10.02 DEFINITIONS

Accident Analysis – A summary of the accident history on adjacent roadways during a specified time period. Such analyses typically include measures to mitigate the impact of site traffic on safety based on accident history and associated information.

Capacity – The maximum number of vehicles which can pass a given point during one hour under prevailing roadway and traffic conditions.

Level of Service (LOS) – A qualitative measure of traffic operating conditions based on such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. Level of Service analyses conducted as part of a TIA shall be determined using procedures of the latest edition of the Highway

Capacity Manual,

Special Report 209 published by the Transportation Research Board (TRB).

Modal Split – The percentage of people using a certain means of transport; auto, transit, walk.

Queuing Analysis – an analysis of vehicle stacking and required lane storage necessary to mitigate excessive vehicle queues. Typically performed for drive-through facilities, drop-off zones to schools and daycare facilities, entrance gates, turn lanes and median breaks.

Sight Distance Survey – a survey of the available horizontal and vertical sight distance at access points to a site, intersection or roadway section. Such study must include measures to eliminate any resulting safety hazard.

Signal Cycle – the time period required for one complete sequence of traffic signal indications.

Signal Phase – a part of the signal cycle allocated to a traffic movement or any combination of traffic movements.

TIA Analysis Periods – time periods for traffic assessment as part of a TIA submittal.

Traffic Control Device – Any sign, signal, marking, or device placed or erected for the purpose of regulating, warning, or guiding vehicular traffic and/or pedestrians.

Traffic Impact Analysis – A study that provides information to: 1.) Determine whether or not the existing and planned thoroughfare system can accommodate the traffic to be generated by a proposed development; and 2.) Evaluate the appropriate traffic mitigation measures if the thoroughfare system cannot accommodate the impact.

Traffic Simulation – The use of a computer model to provide detailed analysis of the interaction between traffic, roadway geometry, and traffic control devices.

Trip Generation – The number of one-way traffic movements associated with such variables as building size, type of dwelling unit, employees, land area, etc. Table 5.1 lists generalized trip generation rates for various land uses.

Turn Lane Analysis – an analysis of storage requirements for driveways or nearby intersections based on existing and future roadway volumes.

Vehicle Trip – A one-way movement of a vehicle between two points.

Volume/Capacity Ratio (V/C) – the ratio of an actual volume to the capacity of a roadway.

10.03 APPLICABILITY OF REQUIREMENTS

A. Initial analysis to determine if TIA is required for all zoning and development requests.

1. Zoning

These TIA requirements shall apply to all zoning and development requests for land uses, which will generate 2,500 or more vehicle trips per day or contain a density of 0.75 Floor Area Ratio (FAR) or greater. Applicable requests include zoning requests and Thoroughfare Plan amendments, if no previous traffic assessment was performed. Special circumstances, including but not limited to development with no case history, which do not meet the daily trip generation threshold may also require a TIA. Such circumstances, as determined by the City's Director of Planning or designated representative may include, but are not limited to; impacts to residential neighborhoods from non-residential development, inadequate site accessibility, the implementation of the surrounding Thoroughfare Plan is not anticipated during the estimated time period of the proposed development, the proposed land use differs significantly from that contemplated in the Comprehensive Plan, the internal street or access is not anticipated to accommodate the expected traffic generation.

A TIA for single-family residential development will not be required if the development contains a density of six dwelling units or less unless special circumstances exist, as determined by the City's Director of Planning or designated representative. These special circumstances may include, but are not limited to; impacts to other residential development from cut-through traffic, inadequate site accessibility, the implementation of the surrounding Thoroughfare Plan is not anticipated during the estimated time period of the proposed development, the internal street or access system is not anticipated to accommodate the expected traffic generation, or the development is outside the urban core of the community.

The analysis periods for a zoning TIA shall be the opening year of development, five years after development opening, and ten years after opening with full build out of the site. The analysis shall include all adjacent signalized and/or unsignalized intersections within 1-1½ miles of the site boundary.

The City's Director of Planning or designated representative based upon the results and recommendation from a pre-submission meeting with the applicant shall determine the need for a TIA. It shall be the responsibility of the applicant to demonstrate that a TIA should not be required.

2. Development

These TIA requirements shall apply to all Site Plan requests for land uses, except single-family residential development, which will generate over 100 total trips during the AM or PM peak hour. Applicable development requests include concept plan, preliminary site plan, site plan and preliminary or final plats, if no TIA were previously performed. Special cases, in which site generated peak hour trip activity is different from that of the adjacent street (weekday 7-9am, 4-6pm), may require an additional separate analysis as determined by the City's Director of Planning or designated representative. Such circumstances may include, but not be limited to commercial/retail, entertainment or institutional activity. The Director of Planning may waive the TIA for a concept plan, preliminary site plan, and or site plan if a TIA was performed with the Zoning request and conditions listed in the report are current.

Depending upon specific site development characteristics of the proposed development, one or more of the following elements may also be required as part of the TIA: an accident analysis, sight distance survey, traffic simulation, queuing analysis and/or turn lane analysis.

The need for a TIA shall be determined by the City's Director of Planning or designated representative based upon the results and recommendation from a pre-submission meeting. The level of effort for a TIA submission shall be determined based on the criteria set forth in Table 2.1.

B. Requirements for TIA Updates

A TIA shall be updated when time or circumstances of the original study fall within the parameters presented in Table 10.02. The applicant is responsible for preparation and submittal of appropriate documentation in order for City Staff to process the zoning or development application. A TIA for site development requests must be updated if two years have passed since the original submittal, or if existing or assumed conditions have changed within the defined study area. The City's Director of Planning or designated representative shall make the final determination as to the extent of a TIA update.

Table 10.02 Criteria or Determining Study Requirements

Analysis	Development	TIA Analysis Periods (a)	Minimum Study Area (c) (d)

Category	Characteristic		
I	➢ >50 peak hour driveway trips; or ➢ 100 – 500 total peak hour trips	1. Existing Year 2. Opening year 3. 5 years after opening	1. All site access drives 2. All signalized intersections and/or major unsignalized street intersections within ½ - 1 mile of site boundary
II	➢ > 500 total peak hour trips	1. Existing Year 2. Opening year of each phase 3. 5 years after initial phase opening (b) 4. 10 years after final opening with full build out	1. All site access drives 2. All signalized intersections and major unsignalized street intersections within 1½ miles of site boundary

a. Analysis periods shall include build and no-build scenarios. Assume full occupancy and build-out.

b. TIA study not required if the traffic impacts of the project are fully mitigated 10 years after opening with existing conditions plus 5-year programmed improvements.

c. For certain projects the City may require an enlarged study area. Land uses within the Study Area should include recently approved or pending development adjacent to site.

d. Depending upon specific site development characteristics, the following analyses may also be required as part of the TIA; accident analysis, sight distance survey, traffic simulation, queuing analysis, and/or turn lane analysis.

e. Development with 50-500 peak hour trips may require a TIA, as determined by the Director of Planning or designated representative.

Table 10.03 Criteria for Determining Study Update Requirements

	Changes to the Original Proposed Development	
Original Report is	**Access Changed* or Trip Generation Increased by more than 10%**	**Access Not Changed and Trip Generation Increased by less than 10%**
Zoning or Site Plan < 2 Years Old	Letter Amendment Required: Identify and report only analysis conditions that changed.	Letter Documenting Change (No other reports required)
Preliminary Site Plan or Site Plan > 2 Years Old	Prepare New Study. Must meet all current requirements of this TIA Guideline	Prepare New Study. Must meet all current requirements of this TIA Guideline

*Changed access includes proposed new access or refinement of general access locations not specifically addressed in original proposed development.

10.04 RESPONSIBILITY OF TIA PREPARATION AND REVIEW

A TIA must be prepared in accordance with all the guidelines of this ordinance and submitted in accordance with the Development Review Schedule set by the City of Frisco. The responsibility for TIA preparation shall rest with the applicant, and must be performed by a licensed Professional Engineer (PE) in the State of Texas with experience in traffic and transportation engineering. The final TIA report must be signed and sealed by the PE responsible for the analysis to be considered for review by the City. For a TIA to be accepted and reviewed, the study shall be signed and sealed by a licensed professional engineer. Application and review fees are due at the time of each submittal. City staff shall serve primarily in a review and advisory capacity, and will only provide data to the applicant when available.

It shall be the responsibility of the applicant to submit four (4) draft TIA reports, final reports, and executive summaries with the zoning and/or development submission. The proper number of reports, the timing for submission, and the review of these reports shall be based on standard City development review procedures. Incomplete TIA's or failure to submit a TIA with the submission shall delay consideration of zoning and development requests. Should it be determined during the review of the zoning and/or development plans that a TIA is required, consideration shall be deferred until the applicant submits a completed TIA and the City has reviewed the assessment.

An initial review of the TIA by the City shall be available to the applicant nine (9) working days from the submittal date. Should additional analysis be required of the applicant, re-submission shall be within four (4) working days from when the initial review is available. Incomplete TIA's or failure to submit a TIA with the submission shall delay consideration of zoning and development requests. Longer review periods may be needed if the Texas Department of Transportation (TXDOT) is involved in the review process.

10.05 TRAFFIC IMPACT ASSESSMENT STANDARDS

It is the objective of the City to determine whether the existing and planned thoroughfare system can accommodate the impact of the proposed development. To achieve uniformity in the evaluation process, the following standards shall apply:

A. Design Level of Service

The minimum acceptable level of service (LOS) within the City shall be defined as LOS "D" in the peak hour for all critical movements and links. All development impacts on both thoroughfare and intersection operations must be measured against this standard.

B. Trip Generation Resources

The City's standard for trip generation rates for various land use categories shall be those found in the latest edition of Trip Generation published by the Institute of Transportation Engineers (ITE) or other published or recognized sources applicable to the region. Alternate trip generation rates may be accepted on a case-by-case basis if the applicant can provide current supporting data substantiating that their development significantly differs from the ITE rates. The City's Director of Planning or designated representative in advance of the TIA submission must approve alternative trip generation rates in writing.

Trip reductions for passer-by trips and mixed-use developments will be permitted, subject to analytical support provided by the applicant and approval by the City's Director of Planning or designated representative, on a case-by-case basis. Assumptions relative to auto occupancy, transit mode share, or percentage of daily traffic to occur in the peak hour must be documented and will be considered subject to analytical support provided by the applicant.

C. Study Horizon Years

The TIA must evaluate the impact of the proposed development on both existing traffic conditions and future traffic conditions for the horizon year(s) as specified in Table 10.02 under Section 10.03. However, applications for densities of 0.75 Floor Area Ratio (FAR) or greater within the Dallas North Tollway, SH 121, US 380 or Preston Road corridors (throughout the City Limits) shall require that the horizon year land use assumptions be updated to reflect full development based on all proposed zoning. These applications should also assume full development of the Master Thoroughfare Plan or pending amendments.

10.06 **METHODOLOGY:**

The TIA for zoning and development applications shall comply with the following methodology and be formatted as outlined in Section 10.07 Report Formatting.

1. Site Location/Study Area – a brief description of the size, general features, and location of the site, including a map of the site in relation to the study area and surrounding vicinity;

2. Existing Zoning – a description of the existing zoning for the site and adjacent property, including land area by zoning classification and density by FAR, square footage, number of hotel rooms, and dwelling units (as appropriate);

3. Existing Development – a description of any existing development on the site and adjacent to the site and how it would be affected by the development

proposal;

4. Proposed Zoning / Site Development – a description of the proposed zoning/development for the site, including land area by zoning classification and density by FAR, square footage, number of hotel rooms, and dwelling units (as appropriate); identify other adjacent land uses that have similar peaking characteristics as the proposed land use; identify recently approved or pending land uses within the area;

5. Thoroughfare System – a description and map of existing planned or proposed thoroughfares and traffic signals for horizon year(s) within the study area;

6. Existing Traffic Volumes – recent traffic counts for existing thoroughfares and major intersections within the study area;

7. Projected Traffic Volumes – horizon year(s) background traffic projections for the planned thoroughfare system within the study area;

8. Existing Site Trip Generation – a table displaying trip generation rates and total trips generated by land use category for the AM and PM peak hours and on a daily basis, assuming full development and occupancy based on existing zoning (if applicable), and including all appropriate trip reductions (as approved by Staff);

Table 10.06 General Trip Generation*

Category	Land Use	Development Units	Trip Rate		
			Daily	AM Pk Hr	PM Pk Hr
Residential	Single-Family Detached	Dwelling Unit	9.57	0.75	1.01
	Multi-Family	Dwelling Unit	6.63	0.51	0.62
	Retirement Community	Dwelling Unit	--	0.17	0.27
Office	General Office Building	1000 GFA	11.01	1.56	1.49
	Corporate Headquarters	1000 GFA	7.72	1.47	1.39
	Business Park	1000 GFA	12.76	1.43	1.29
	Medical Office Building	1000 GFA	36.13	2.43	3.66
Commercial	Shopping Center	1000 GFA	42.92	1.03	3.74
	Quality Restaurant	1000 GFA	89.95	0.81	7.49
	Fast Food Restaurant	1000 GFA	496.12	49.86	33.48
	High Turnover Restaurant	1000 GFA	130.34	9.27	10.86
	Home Improvement Superstore	1000 GFA	35.05	1.48	2.87
	Building Materials/Lumber Store	1000 GFA	39.71	2.64	4.04
	Convenience Store w/Gas	1000 GFA	542.60	17.17	19.22

	Pumps				
	Drive-In Bank	1000 GFA	265.21	12.63	54.77
	Hotel	Rooms	8.23	0.56	0.61
	Supermarket	1000 GFA	111.51	3.25	11.51
	Movie Theater	Seats	--	--	0.14
	Golf Course	Holes	35.74	2.22	2.74
Industrial	General Light Industrial	1000 GFA	6.97	0.92	0.98
	Manufacturing	1000 GFA	3.82	0.73	0.74
	Industrial Park	1000 GFA	6.96	0.89	0.92
	Mini-Warehouse	1000 GFA	2.50	0.15	0.26
Institutional	Elementary School	Students	1.02	0.29	--
	Middle School	Students	1.45	0.46	0.16
	High School	Students	1.79	0.46	0.15
	Day Care Center	Students	4.52	0.81	0.86
	Hospital	Beds	11.77	1.07	1.22
	Nursing Home	Occ. Beds	--	0.19	0.17
	Church	1000 GFA	9.11	0.72	0.66

***General trip activity; not to be applied as part of actual assessment. For a more inclusive list, consult ITE or other recognized sources as approved by the Director of Planning.** GFA - gross floor area; Fuel Station - vehicle fueling position; Occ. Beds - occupied beds.

9. Proposed Site Trip Generation – a table displaying trip generation rates and total trips generated by land use category for the AM and PM peak hours and on a daily basis, assuming full development and occupancy for the proposed development, and including all appropriate trip reductions (as approved by Staff);
10. Net Change in Trip Generation (zoning) – proposed trip generation minus existing trip generation (if applicable); the net increase in trips to be added to base volumes for the design year;
11. Trip Distribution and Traffic Assignment – tables and figures of trips generated by the proposed development (or net change in trips, if applicable) added to the existing and projected volumes, as appropriate, with distribution and assignment assumptions, unless computer modeling has been performed;
12. Level of Service Evaluations – capacity analyses for weekday AM and PM peak hours of the roadway and peak hour of the site, if different from the roadway, for both existing conditions and horizon year projections for intersections, thoroughfare links, median openings and turn lanes associated with the site, as applicable;
13. Traffic Signal Evaluations – the need for new signals based on warrants, the impact on transportation system performance;
14. Evaluation of Proposed/Necessary Mitigation – capacity analyses for weekday AM and PM peak hours of the roadway and peak hour of the site, if different from the roadway, for intersections, thoroughfare links, median openings and turn lanes associated with the site under proposed/necessary

traffic mitigation measures;

15. Conclusions – identification of all thoroughfares, driveways, intersections, and individual movements that exceed LOS D, degrade by one or more LOS, the percentage of roadway volume change produced by the proposed development, and any operational problems likely to occur;
16. Recommendations – proposed impact mitigation measures consistent with the Section 8.0 - Mitigation; and
17. Other information required for proper review – as requested by the City's Director of Planning or designated representative.

10.07 REPORT FORMAT

The TIA report must be prepared on 8½" x 11" sheets of paper. However, it may contain figures on larger sheets, provided they are folded to this size. All text and map products shall be computer-based and provided in both a computerized and published format compatible with Word97 and ArcView GIS (geographic information system). In addition, all electronic files used as part of the traffic analysis (i.e., Synchro, HCS, Passer II/III, Corsim, etc.) shall be provided.

The various sections of the report should be categorized according to the subject areas below:

Executive Summary
I. Introduction
   A. Purpose
   B. Methodology
II. Existing And Proposed Land Use
   A. Site Location/Study Area
   B. Existing Zoning
   C. Existing Development
   D. Proposed Zoning (if applicable)
III. Existing And Proposed Transportation System
   A. Thoroughfare System
   B. Existing Traffic Volumes
   C. Projected Traffic Volumes
IV. Site Traffic Characteristics
   A. Existing Site Trip Generation (if applicable)
   B. Proposed Site Trip Generation
   C. Net Change in Trip Generation (if applicable)
   D. Trip Distribution and Traffic Assignment
V. Traffic Analysis
   A. Level of Service Evaluations
   B. Traffic Signal Evaluations

VI. Traffic Mitigation
VII. Conclusions
VIII. Recommendations
APPENDICES

10.08 **MITIGATION**

Mitigation of impacts shall be required if the proposed development would cause a facility or traffic movement to exceed LOS D, or where it already exceeds LOS D and the development would contribute 5% or more of the total traffic during any projected horizon year. If mitigation is required, the applicant must only mitigate the impact of the proposed development, and would not be responsible for alleviating any deficiencies in the thoroughfare system that may occur without the proposed development. Acceptable mitigation measures shall include:

1. Staging of development in order to relate site development to the construction of the required thoroughfare system;
2. Off-site improvements, including the provision of right-of-way and/or the participation in funding for needed thoroughfare and intersection improvement projects; and
3. On-site improvements, including access controls and site circulation adjustments.

10.09 **ADMINISTRATION** (ZA2002-0021)

Based on the results of the TIA and actions recommended by the City Engineer, the Planning & Zoning Commission and/or the City Council, as appropriate, shall take one or more of the following actions:

1. Approve the zoning or development request, if the project has been determined to have no significant impact or where the impacts can be adequately mitigated;
2. Approve the development request, subject to a phasing plan;
3. Recommend study of the City Thoroughfare Plan to determine amendments required to increase capacity;
4. Recommend amendment of the Capital Improvement Program (CIP) to expedite construction of needed improvements; and

5. Deny the zoning request, where the impacts cannot be adequately mitigated.

10.10 **COST OF TIA REVIEW BY CITY**

The cost for review of TIA submittals shall be based on the parameters set forth in the City of Frisco Development Fee Schedule and paid in full at time of submission.

10.11 **REPORT CHECKLIST**

A TIA submittal shall also contain a completed report checklist, as presented on the following pages. The Applicant is responsible for the preparation of the report and content checklist. Any items inappropriately labeled on the checklist will delay the review of the zoning or development application.

CITY OF FRISCO

TRAFFIC IMPACT ANALYSIS
REPORT CONTENT CHECKLIST

To be completed by Applicant (including page #):

Name of Traffic Study _____
Consultant _____
Date Submitted _____

		Submission		
Indicate Page # in report:		YES	NO	NOT Required
	Executive Summary			
Pg. _____	1. Description of existing/proposed zoning of site and adjacent properties.	☐	☐	
Pg. _____	2. Provide summary of traffic evaluations.	☐	☐	
Pg. _____	3. Provide summary table of level of service evaluations.	☐	☐	
Pg. _____	4. Provide description of proposed mitigation, as applicable.	☐	☐	
	I. Introduction			
Pg. _____	A. Describe purposed of study	☐	☐	
Pg. _____	B. Describe general study methodology	☐	☐	
	II. Existing and Proposed Land Use			
Pg. _____	A. 1. Describe, size, general features and location of the site.	☐	☐	
Pg. _____	2. Provide figure displaying site in relation to study area and vicinity; Identify large traffic generators within area.	☐	☐	
Pg. _____	B. 1. Describe existing zoning for the site.	☐	☐	
Pg. _____	2. Provide table displaying land area by zoning and density by FAR, square footage, or size of project.	☐	☐	
Pg. _____	C. 1. Describe any existing development on the site and how it would be affected by the development proposal.	☐	☐	
Pg. _____	D. 1. Describe proposed zoning for the site.	☐	☐	
Pg. _____	2. Provide table displaying land area by zoning and density by FAR, square footage, or size of project.	☐	☐	
	III. Existing and Proposed Transportation System			
Pg. _____	A. 1. Inventory existing thoroughfares and signals within the study area.	☐	☐	
Pg. _____	2. Provide figure displaying existing thoroughfares/signals within the study area.	☐	☐	
Pg. _____	3. Identify thoroughfares/signals within study area that are planned for improvement by the project horizon year(s).	☐	☐	
Pg. _____	B. 1. Provide figure displaying daily traffic counts for all thoroughfares within the study area and provide peak hour turning movement counts for all major intersections within the study area.	☐	☐	
Pg. _____	2. Identify source and year of traffic counts.	☐	☐	
Pg. _____	C. 1. Identify horizon year(s) for traffic volumes.	☐	☐	
Pg. _____	2. Provide figure displaying projected traffic volumes for all thoroughfares within the study area for the appropriate horizon year(s)	☐	☐	

	IV. Site Traffic Characteristics			
	A. 1. Identify full development allowed under existing zoning (if applicable).			
Pg. _____	2. Provide table displaying appropriate daily, AM and PM peak hour trip generation rates by land use category.	☐	☐	
Pg. _____	3. Provide table displaying daily, AM and PM peak hour trip generation by land use category, prior to any trip reductions.	☐	☐	
Pg. _____	4. Provide documentation for any trip reductions due to pass-by or mixed-use development.	☐	☐	
Pg. _____	5. Provide table displaying daily, AM and PM peak hour trip generation by land use category, including trip reductions, if applicable.	☐	☐	
Pg. _____	B. 1. Identify full development for the proposed project.	☐	☐	
Pg. _____	2. Provide table displaying appropriate daily AM and PM trip generation rates by land use category.	☐	☐	
Pg. _____	3. Provide table displaying daily AM and PM generation land use category, prior to any trip reductions.	☐	☐	
Pg. _____	4. Provide documentation for any trip reductions due to passer-by trips or mixed-use development.	☐	☐	
Pg. _____	5. Provide table displaying daily AM and PM trip generation by land use category, including trip reductions, if applicable.	☐	☐	
Pg. _____	C. 1. Provide table displaying proposed trip generation minus existing trip generation.	☐	☐	
Pg. _____	D. 1. Identify directional distribution assumptions, unless computer modeling has been performed.	☐	☐	
Pg. _____	2. Provide figure displaying directional distribution of site traffic, unless computer modeling has been performed.	☐	☐	
Pg. _____	3. Provide figure displaying AM peak hour assigned site traffic within the study area for base year conditions.	☐	☐	
Pg. _____	4. Provide figure displaying PM peak hour assigned site traffic within the study area for base year conditions.	☐	☐	
Pg. _____	5. Provide figure displaying total AM peak hour assigned traffic within the study area for base year conditions, including existing traffic plus additional site-generated traffic.	☐	☐	
Pg. _____	6. Provide figure displaying total PM peak hour assigned traffic within the study area for base year conditions, including existing traffic plus additional site-generated traffic.	☐	☐	
Pg. _____	7. Provide figure displaying total AM peak hour assigned traffic within the study area for horizon year conditions, including background traffic plus additional site-generated traffic.	☐	☐	
Pg. _____	8. Provide figure displaying total PM peak hour assigned traffic within the study area for horizon year conditions, including background traffic plus additional site-generated traffic.	☐	☐	
Pg. _____		☐	☐	
	V. Traffic Analysis			
	A. 1. Identify capacity analysis technique utilized (Highway Capacity Manual).			
Pg. _____		☐	☐	
	2. Provide figure for displaying lane assignments for capacity analyses for base year conditions.			
Pg. _____		☐	☐	
	3. Provide figure for displaying lane assignments for capacity analyses for horizon year conditions.			
Pg. _____		☐	☐	
	4. Perform AM and PM capacity analyses for existing conditions on all thoroughfares, intersections and at all major driveways serving the development.			
Pg. _____		☐	☐	
	5. Perform AM or PM peak hour capacity analyses for base year conditions on all thoroughfares, intersections and driveways serving the site within the study area, including existing traffic plus additional			

Pg. _____	site generated traffic.	☐	☐	
	6. Perform AM or PM peak hour capacity analyses for horizon year conditions on all thoroughfares, intersections and driveways serving the site within the study area, including existing traffic plus additional			
Pg. _____	site generated traffic.	☐	☐	
	7. Identify percentage of daily horizon year traffic assumed for peak			
Pg. _____	hour.	☐	☐	
Pg. _____	8. Summarize level of service evaluations.	☐	☐	
Pg. _____	9. Provide analysis sheets in appendix to report.	☐	☐	
Pg. _____	B. 1. Identify locations studied.	☐	☐	
Pg. _____	2. Identify locations meeting warrants.	☐	☐	
Pg. _____	3. Identify signal timing procedures utilized.	☐	☐	
Pg. _____	4. Identify impact of new signals on existing system performance.	☐	☐	
Pg. _____	5. Summarize traffic signal evaluation process.	☐	☐	
Pg. _____	6. Provide analysis sheets in appendix to report.	☐	☐	
	VI. Traffic Mitigation			
Pg. _____	A. 1. Provide figure for displaying location and type of mitigation.	☐	☐	
	2. Perform AM or PM peak hour capacity analyses for horizon year conditions on all thoroughfares, intersections and driveways serving the site within the study area, including existing traffic plus additional			
Pg. _____	site generated traffic.	☐	☐	
Pg. _____	3. Summarize level of service evaluations.	☐	☐	
Pg. _____	4. Provide analysis sheets in appendix to report.	☐	☐	
	VII. Conclusions			
	1. For all thoroughfares and intersections exceeding LOS D in the base year, provide figure displaying percentage of change produced by the			
Pg. _____	development during the AM or PM peak hour.	☐	☐	
	2. For all thoroughfares and intersections exceeding LOS D in the horizon year, provide figure displaying percentage of change produced by the			
Pg. _____	development during the AM or PM peak hour.	☐	☐	
	3. Provide summary table of all thoroughfares and intersections within the study area where the development would contribute 5% or more of the			
Pg. _____	total AM or PM peak hour traffic during the base years.	☐	☐	
	4. Provide summary table of all thoroughfares and intersections within the study area where the development would contribute 5% or more of the			
Pg. _____	total AM or PM peak hour traffic during the horizon years.	☐	☐	
Pg. _____	5. Summarize any site access or circulation problems in the base year.	☐	☐	
Pg. _____	6. Summarize any site access or circulation problems in the horizon year(s).	☐	☐	

		Submission		
Indicate Page # in report:		YES	NO	NOT Required
Pg. _____ Pg. _____ Pg. _____ Pg. _____ Pg. _____	**VIII. Recommendations** 1. Describe proposed impact mitigation measures, if the development would cause any facility to exceed LOS D; or where it already exceeds LOS D, and the development would contribute 5% or more of the total traffic during the project build-out year. 2. Provide figure displaying needed off-site improvements, if applicable. 3. Provide figure displaying needed on-site improvements, if applicable. 4. Identify benefits and/or improved levels of service with implementation of the proposed mitigation measures. 5. Provide analysis sheets in appendix to report, if applicable.	☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐	
Pg. _____ Pg. _____ Pg. _____	**Appendices** 1. Includes analysis sheets for level of service evaluating performed without proposed mitigation measures. 2. Include analysis sheets for traffic signal evaluations. 3. Include analysis sheets for level of service evaluations performed with proposed mitigation measures, if applicable.	☐ ☐ ☐	☐ ☐ ☐	
Pg. _____ Pg. _____ Pg. _____	**Administrative** 1. Traffic Impact Analysis is signed and sealed by a licensed Professional Engineer in the State of Texas. 2. The submittal includes the proper number of copies of TIA. 3. Supporting documentation and electronic files are included with submittal.	☐ ☐ ☐	☐ ☐ ☐	

NOTE: Any items inappropriately labeled on this check list will delay the review of development or zoning application.

THE TRAFFIC STUDY AS RECEIVED BY CITY'S TRAFFIC CONSULTANT FOR THE SUBJECT PROJECT IS:

_____ Approved

_____ Not approved because the following items are missing:

_____
_____
_____
_____
_____